UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,534	12/14/2001	Atsushi Funabiki	Q67681	4025

7590 03/24/2004

Sughrue Mion Zinn Macpeak & Seas
2100 Pennsylvania Avenue N W
Washington, DC 20037

EXAMINER	
CHANEY, CAROL DIANE	
ART UNIT	**PAPER NUMBER**
1745	

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/009,534	FUNABIKI ET AL.	
	Examiner	Art Unit	
	Carol Chaney	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 9, and 10 are rejected under 35 U.S.C. 102(a) as being anticipated by Amine et al., "β-FeOOH, a new positive electrode material for lithium secondary batteries", Journal of Power Sources, 81-82 (September 2000) 221-223.

Amine et al. disclose β-FeOOH as a cathode material for lithium secondary batteries. A lithium-intercalated form, β-FeOOH$Li_{0.91}$, is disclosed. (See page 222, second column.) An x-ray diffraction pattern of β-FeOOH is shown in Fig. 1. The half-widths of the diffraction peaks shown appear to be greater than about 0.50. Amine et al. disclose the β-FeOOH has good cyclic reversibility, and the β-FeOOH structure has framework tunnels in which the lithium ions are located. Furthermore, Amine et al. observe that the intercalated Li can be freely extracted and intercalated back without any alteration. Consequently, it is clear that the framework structure is not modified by the intrcalation/deintercalation of lithium. Thus, the x-ray diffraction pattern of β-FeOOH$Li_{0.91}$ will inherently be identical to the x-ray diffraction pattern of β-FeOOH and claims 1, 9 and 10 are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amine et al., "β-FeOOH, a new positive electrode material for lithium secondary batteries", Journal of Power Sources, 81-82 (September 2000) 221-223 in view of Maegawa et al., US Patent 6,383,235 B1.

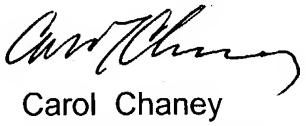
As discussed above, Amine et al. disclose applicants' invention essentially as claimed, with the exception that Amine et al. do not specifically disclose particle sizes or aspect ratios of either β-FeOOH or β-FeOOH$Li_{0.91}$ when used as cathode materials. Maegawa et al. disclose lithium transition metal oxides as cathode materials for secondary lithium batteries. (See columns 8 and 9, Table 1.) Thus, Maegawa et al. disclose cathode materials which are essentially analogous to the lithium iron oxy-hydroxide cathode materials disclosed by the applicants. Maegawa et al. teach that spherical cathode materials having a particle size between 0.5 to 5.0 microns have a size suitable for secondary batteries. (Note Maegawa et al., column 6, lines 52-54.) Therefore, it would have been obvious to one of ordinary skill in the art to size the β-FeOOH disclosed by Amine et al. as spherical particles with sizes between 0.5 to 5.0 microns because Maegawa et al. teach such a size is suitable for lithium ion secondary batteries with lithium transition metal oxide type cathode materials.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (571) 272-1284. The examiner can normally be reached on Mon - Fri 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Carol Chaney
Primary Examiner
Art Unit 1745

21 March 2004